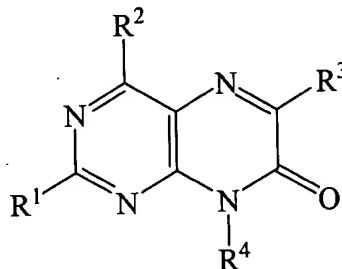


Please amend claims 1-4, 10-12, 18-19, 22 and 29 as follows:

1. (Amended) A compound of the formula:



wherein:

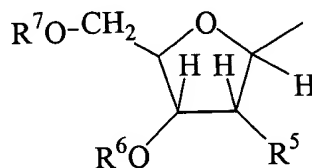
$R^1$  is a member selected from the group consisting of hydrogen and optionally substituted  $C_1$ - $C_6$ -alkyl;

$R^2$  is a member selected from the group consisting of amino and mono- or di-substituted amino wherein the substituent is a protecting group;

$R^3$  is optionally substituted  $C_1$ - $C_6$  alkyl;

$R^4$  is L;

L is of the formula



wherein:

$R^5$  is hydroxyl;

$R^6$  is a member selected from the group consisting of hydrogen, phosphoramidite, an H-phosphonate, a methyl phosphonate, a phosphorothioate, a phosphotriester, a hemisuccinate, a hemisuccinate covalently bound to a solid support, a dicyclohexylcarbodiimide, and a dicyclohexylcarbodiimide covalently bound to a solid support, a hydroxyalkyl, and a hydroxyalkyl covalently bound to a solid support; and

$R^7$  is a member selected from the group consisting of hydrogen, a phosphate, a triphosphate, and a protecting group.

2. (Amended) A compound in accordance with claim 1, wherein  $R^1$  is hydrogen;

$R^2$  is a member selected from the group consisting of amino, mono-, and di-substituted amino wherein the substituents are members selected from the group consisting of benzoyl, isobutyryl, phthaloyl, di-n-butylaminomethylidene, dimethylaminomethylidene, p-nitrophenylethoxycarbonyl and dimethylaminomethylenamino;

$R^4$  is L;

$R^5$  is hydroxyl;

$R^6$  is a member selected from the group consisting of consisting of hydrogen, phosphoramidite, H-phosphonate, hemisuccinate, and hemisuccinate covalently bound to a solid support; and

$R^7$  is a member selected from the group consisting of hydrogen, trityl, monomethoxytrityl, dimethoxytrityl, phthaloyl, di-n-butylaminomethylene, dimethylaminomethylidene and triphosphate.

3. (Amended) A compound in accordance with claim 2, wherein  $R^2$  is a member selected from the group consisting of amino and an amino group mono-substituted by a protecting group selected from the group consisting of di-n-butylaminomethylidene, p-nitrophenylethoxycarbonyl, and dimethylaminomethylenamino;

$R^5$  is hydroxyl;

$R^6$  is a member selected from the group consisting of hydrogen,  $\beta$ -cyanoethyl-N-diisopropyl phosphoramidite and a hemisuccinate covalently bound to controlled pore glass; and

$R^7$  is a member selected from the group consisting of dimethoxytrityl, di-n-butylaminomethylene, and dimethylaminomethylidene.

4. (Amended) A compound in accordance with claim 2, wherein  $R^2$  is a member selected from the group consisting of amino and an amino group mono-substituted by a protecting group selected from the group consisting of di-n-butylaminomethylidene, p-nitrophenylethoxycarbonyl, and dimethylaminomethylenamino;

$R^5$  is hydroxyl;

$R^6$  is a member selected from the group consisting of hydrogen and  $\beta$ -cyanoethyl-N-diisopropyl phosphoramidite; and

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Cancel

$R^7$  is a member selected from the group consisting of hydrogen and dimethoxytrityl.

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10. (Amended) A compound in accordance with claim 1, wherein;  
 $R^1$  is optionally substituted  $C_1-C_6$  alkyl;  
 $R^2$  is a member selected from the group consisting of amino, mono-, and di-substituted amino wherein the substituent is a member selected from the group consisting of benzoyl, isobutyryl, phthaloyl, di-n-butylaminomethylidene, dimethylaminomethylidene, p-nitrophenylethoxycarbonyl and dimethylaminomethylenamino;  
 $R^3$  is optionally substituted  $C_1-C_6$  alkyl;  
 $R^4$  is L;  
 $R^5$  is hydroxyl;  
 $R^6$  is a member selected from the group consisting of hydrogen, H-phosphonate, phosphoramidite, hemisuccinate, and hemisuccinate covalently bound to a solid support; and  
 $R^7$  is a member selected from the group consisting of hydrogen, trityl, monomethoxytrityl, dimethoxytrityl, phthaloyl, di-n-butylaminomethylene, and dimethylaminomethylidene.

11. (Amended) A compound in accordance with claim 10, wherein  $R^1$  is methyl;  
 $R^2$  is a member selected from the group consisting of amino and an amino group mono-substituted by a protecting group selected from the group consisting of di-n-butylaminomethylidene, p-nitrophenylethoxycarbonyl, and dimethylaminomethylenamino;  
 $R^3$  is methyl;  
 $R^5$  is hydroxyl;  
 $R^6$  is a member selected from the group consisting of hydrogen,  $\beta$ -cyanoethyl-N-diisopropyl phosphoramidite and a hemisuccinate covalently bound to controlled pore glass; and  
 $R^7$  is a member selected from the group consisting of dimethoxytrityl, di-n-butylaminomethylene, and dimethylaminomethylidene.

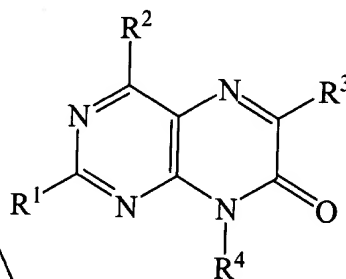
12. (Amended) A compound in accordance claim 10, wherein R<sup>1</sup> is methyl; R<sup>2</sup> is a member selected from the group consisting of amino and an amino group mono-substituted by a protecting group selected from the group consisting of di-n-butylaminomethylidene, p-nitrophenylethoxycarbonyl, and dimethylaminomethylenamino;

R<sup>5</sup> is hydroxyl;

R<sup>6</sup> is a member selected from the group consisting of consisting of hydrogen and  $\beta$ -cyanoethyl-N-diisopropyl phosphoramidite; and

R<sup>7</sup> is a member selected from the group consisting of hydrogen and dimethoxytrityl.

18. (Amended) An oligonucleotide comprising one or more nucleotide monomers, said monomers having the formula



wherein:

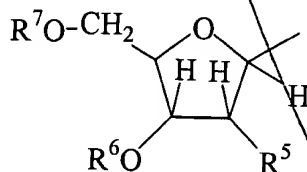
R<sup>1</sup> is a member selected from the group consisting of hydrogen and optionally substituted C<sub>1</sub>-C<sub>6</sub>-alkyl;

R<sup>2</sup> is a member selected from the group consisting of amino and mono- or di-substituted amino wherein the substituent is a protecting group;

R<sup>3</sup> is optional substituted C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sup>4</sup> is L;

L is of the formula



wherein:

$R^5$  is a member selected from the group consisting of hydrogen and hydroxyl;

$R^6$  is a member selected from the group consisting of hydrogen, a phosphate, a phosphate covalently attached to a nucleotide, a phosphate covalently attached to a nucleoside; a hemisuccinate covalently bound to a solid support, a dicyclohexylcarbodiimide covalently bound to a solid support, and a hydroxyalkyl covalently bound to a solid support; and

$R^7$  is a member selected from the group consisting of hydrogen, a phosphate, a phosphate covalently attached to a nucleotide and a phosphate covalently attached to a nucleoside;

wherein at least one of  $R^6$  and  $R^7$  is a phosphate covalently attached to adenosine.

19. (Amended) An oligonucleotide in accordance with claim 18, wherein:

$R^1$  is hydrogen;

$R^2$  is amino;

$R^3$  is methyl;

$R^5$  is hydrogen and hydroxyl;

$R^6$  is hydrogen; and

$R^7$  is a phosphate covalently attached to adenosine.

22. (Amended) An oligonucleotide in accordance with claim 18, wherein:

$R^1$  is optionally substituted  $C_1$ - $C_6$ -alkyl;

$R^2$  is amino;

$R^3$  is methyl;

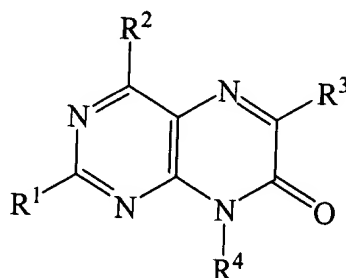
$R^5$  is hydrogen and hydroxyl;

$R^6$  is hydrogen; and

$R^7$  is a phosphate covalently attached to adenosine.

29. (Amended) A method of detecting the presence, absence, or quantity of a target nucleic acid, said method comprising the steps of:

a) contacting said target nucleic acid with a nucleic acid probe wherein said nucleic acid probe comprises compound of the formula:



wherein:

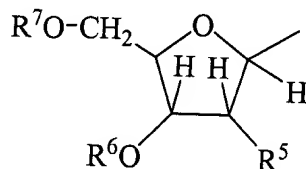
R<sup>1</sup> is a member selected from the group consisting of hydrogen and optionally substituted C<sub>1</sub>-C<sub>6</sub>-alkyl;

R<sup>2</sup> is a member selected from the group consisting of amino and mono- or di-substituted amino wherein the substituent is a protecting group;

R<sup>3</sup> is optionally substituted C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sup>4</sup> is L;

L is of the formula



wherein:

R<sup>5</sup> is a member selected from the group consisting of hydrogen and hydroxyl;

R<sup>6</sup> is a member selected from the group consisting of hydrogen, phosphoramidite, an H-phosphonate, a methyl phosphonate, a phosphorothioate, a phosphotriester, a hemisuccinate, a hemisuccinate covalently bound to a solid support, a dicyclohexylcarbodiimide, and a dicyclohexylcarbodiimide covalently bound to a solid support; and

R<sup>7</sup> is a member selected from the group consisting of a phosphate covalently attached to a nucleotide and a phosphate covalently attached to a nucleoside;

wherein, at least one of R<sup>6</sup> and R<sup>7</sup> is a phosphate covalently attached to adenosine;

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